TWENTY LESSONS *on* POULTRY

—

By C·T·PATTERSON
AMERICAN POULTRY ASS'N.

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A FLOCK OF PEKIN DUCKS. FOWLS ON THE RANGE. POULTRY STUDENTS HOLDING AN EXHIBITION ON THE STREET.

TWENTY LESSONS
ON
POULTRY KEEPING

AN ELEMENTARY TREATISE
PREPARED UNDER THE DIRECTION OF
THE AMERICAN POULTRY ASSOCIATION

BY
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AND EDITED BY
FRANK E. HERING

WITH FULL-PAGE FRONTISPIECE
AND 55 ILLUSTRATIONS IN TEXT

PHILADELPHIA AND LONDON
J. B. LIPPINCOTT COMPANY

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PRINTED BY J. B. LIPPINCOTT COMPANY
AT THE WASHINGTON SQUARE PRESS
PHILADELPHIA, U. S. A.

FOREWORD

The poultry business, once regarded as of small consequence, has come to be recognized as one of our important food-supplying industries. Both the flesh and eggs of poultry have become standard articles of diet. Eggs have been found to be a good substitute for meat; people of all nations eat more of them than of any other kind of food. Consequently, there is a large and steady demand for poultry products.

Indeed, no other farm products, save, perhaps, those of the dairy, give as great a return as poultry for the time and money invested. Even when no especial emphasis is laid upon the raising of fowls, they prove profitable to their owners. On the average farm, the outlay for food for poultry is very small. They can be fed, in part, with the waste from the table. They can supplement this food with scraps and scattered grain, and with insects picked up about the farm and barnyard. It is a matter of economy for a farmer to keep at least as many chickens as can find a living for themselves; for they do more than supply eggs and meat for family use. As a rule, the eggs and fowls sold

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go a long way toward buying groceries, or toward paying some of the other regular expenses of the farm home.

The people of to-day are demanding vocational courses in the public schools. In response to their demand, a study of practical agriculture has been made a part of the school work in many States. A very important subdivision of this study is poultry raising. As a type study the subject of poultry raising will be found to appeal to both boys and girls, large and small, rich and poor, in town and in country. Moreover, it deserves a place in the school curriculum because of the increasing importance of the poultry industries. The raising of fowls should prove a profitable vocation for any enterprising young man or woman, as well as a pleasant, remunerative "side line" for the farmer or the suburbanite.

The American Poultry Association is anxious that the boys and girls of America be given some correct and definite knowledge concerning poultry raising before they start on their life's work. Because so many children leave school about the time they complete their elementary course, this book has been prepared especially for the use of the seventh and eighth grades. It is intended to be studied in connection with the subject of practical agriculture.

We hope this little volume will meet the demands of

both teacher and pupils—that the teacher will find it of assistance in leading the children, and that the children themselves will find it an aid toward making the study of poultry both pleasant and profitable. To this end, we dedicate the book to the teachers and pupils of America.

Respectfully yours,

THE AMERICAN POULTRY ASSOCIATION,
E. B. THOMPSON, President,
S. T. CAMPBELL, Secretary,
C. T. PATTERSON, Author,
FRANK E. HERING, Editor.

November, 1915.

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TWENTY LESSONS ON POULTRY KEEPING

LESSON I

The Origin and History of Fowls

Many hundreds of years ago, before dawn of civilization, man lived by hunting and fishing. When he had caught and killed all the game in any one place, it became necessary for him to move to another region, where he could find a fresh food supply. But finally he became tired of this wandering life and decided to settle down and live in one place which he could call home. Then, in order to be sure of having enough to eat, he was forced to tame some animals and to cultivate some plants for food.

It is thought that the fowl was one of the first animals to be domesticated, or tamed. Perhaps that was because a fowl, once caught and its wing feathers clipped, could not get away as easily as other animals. Whatever the reason, it is certain that many hundreds of years ago wild Aseel and Jungle fowls were captured and tamed by the tribes of India.

Open your geographies and find India. Many centuries ago, men wandered from that country across the Himalaya Mountains into China. With them, they took some tamed Aseel fowls. These fowls were large, angular

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birds, very clumsy and not at all attractive in appearance. For many centuries they were bred in China. To-day their descendants, among which are the large fowls known as the Brahma, Cochin and Langshan, are scattered all over the world.

Now all the poultry that have their origin in any one region are said to belong to a certain class, which usually bears the name of that region. Accordingly, we say that the Brahma, Cochin, Langshan and other types developed in Asia belong to the *Asiatic class.*

But not all of the men who left India for other parts of the world went into China. Some wandered to the northeast, and settled in the countries around the Mediterranean Sea. With them they took some Jungle fowls—small, active, nervous birds, which, after many hundreds of years, developed into the class of fowls we know as the *Mediterranean class.* These fowls are noted for laying great numbers of large, white eggs. Among them are the Leghorn, Minorca and Spanish fowls.

Thus there came into being the two principal classes of chickens—the large Asiatic type, best fitted for meat producing, and the small, active, Mediterranean type, especially adapted for egg producing.

When men first crossed the Atlantic Ocean and settled in America, they brought with them both Asiatic and Mediterranean fowls. In order to insure a supply of both meat

and eggs, it was necessary to keep both classes of birds—which meant, as may readily be seen, a great deal of trouble and inconvenience.

In order to do away with some of this unnecessary trouble, there was developed in America a new class of fowls called dual purpose fowls, because they combined the qualities of the two original classes, producing both eggs and meat. This new type of birds was developed by crossing and recrossing Mediterranean and Asiatic breeds. Some of the principal breeds thus produced are the Plymouth Rocks, the Wyandottes, and the Rhode Island Reds. These, with some others, form the *American class* of fowls.

It is not necessary now to go into the origin of our domesticated turkeys, ducks, and geese. Their line of descent, like that of the chicken, can be traced back directly to wild fowls of more or less remote times.

QUESTIONS

1. When were poultry first tamed?
2. Why were fowls tamed?
3. How were fowls tamed?
4. Where were the large, meat fowls originated?
5. Where were the small, egg fowls originated?
6. Explain the meaning of "class."
7. Explain the meaning of the term "dual purpose fowls."
8. Where and how were the dual purpose fowls developed?
9. Name the classes we have studied.
10. Name some breeds of fowls included in each class.

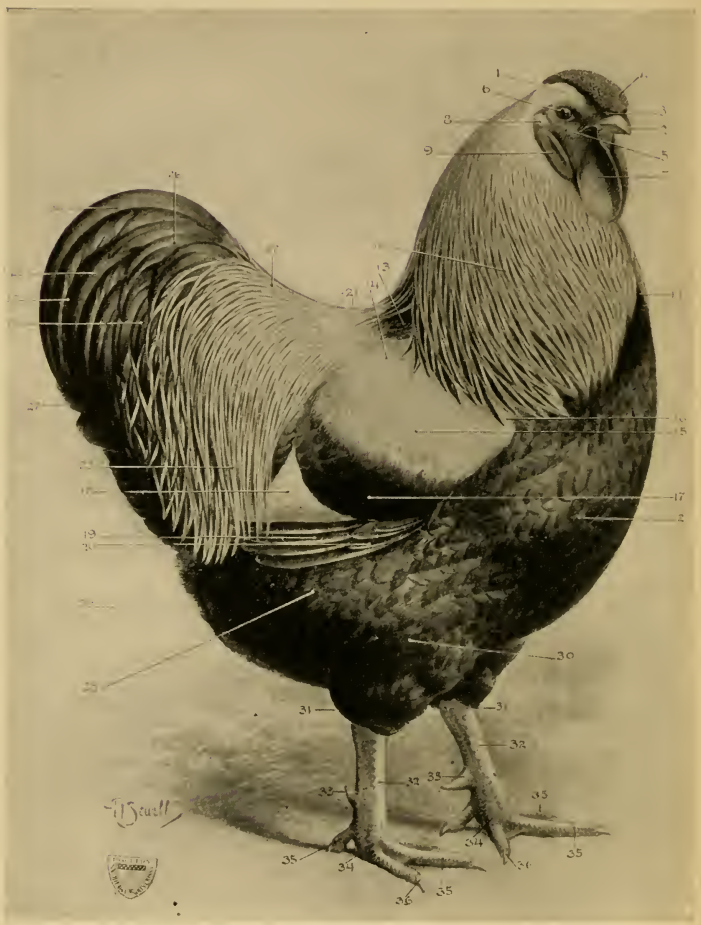


FIG. 1.—Nomenclature diagram of male. 1, head; 2, beak; 3, nostril; 4, comb; 5, face; 6, eye; 7, wattle; 8, ear; 9, ear-lobe; 10, hackle; 11, front of hackle; 12, breast; 13, cape; 14, shoulders; 15, wing-bow; 16, wing-front; 17, wing-coverts, wing-bar; 18, secondaries, wing-bay; 19, primaries; flights; 20, primary coverts; 21, back; 22, saddle; 23, saddle feathers; 24, sickles; 25, smaller sickles; 26, tail coverts; 27-27, main tail feathers: 28, body feathers; 29, fluff; 30, thighs; 31-31, hocks; 32-32, shanks; 33-33, spurs; 34-34; feet; 35-35-35, toes; 36-36, toe nails.

LESSON II

Nomenclature Diagram of Fowl

The illustration opposite gives the various sections of a fowl, with their names. It is essential that this diagram be carefully studied, and the names of the parts learned.

Draw an outline of a fowl on the blackboard.

Number and name the sections from memory.

1.....	2.....	3.....
4.....	5.....	6.....
7.....	8.....	9.....
10.....	11.....	12.....
13.....	14.....	15.....
16.....	17.....	18.....
19.....	20.....	21.....
22.....	23.....	24.....
25.....	26.....	27.....
28.....	29.....	30.....
31.....	32.....	33.....
34.....	35.....	36.....

HOME WORK

Handle some fowls at home, locating each section.

LESSON III

Characteristics of Fowls

We have learned that the fowls which had their origin in a certain region are said to belong to a class which is usually named after that region. All of the fowls of one class, however, are not necessarily alike. Those which resemble one another in certain characteristics, such as size and shape, are said to belong to some particular *breed*. For instance, the Brahma and Cochin chickens both belong to the Asiatic class, but a difference in size and shape shows that they are of separate breeds.

A common means of distinguishing breeds is found in the appearance of shanks and feet. Some of these types are shown in Fig. 2. The most common breeds are those having four toes and smooth shanks. Some breeds, however, have feathers on shanks and toes, and there are a few five-toed breeds.

Fowls may be of the same size and shape, but may differ or vary in color, shape of comb, etc. It is from such differences that we get the various *varieties* of chickens.

In Fig. 3 are shown different types of *combs*. Be sure to learn the names of each kind as well as the names of the different parts of each comb.

While some of the varieties of poultry, such as the single and rose comb varieties of the Leghorn breed, are formed

by a variation of the comb, a far greater number are formed by variations in color. Accordingly, before studying the

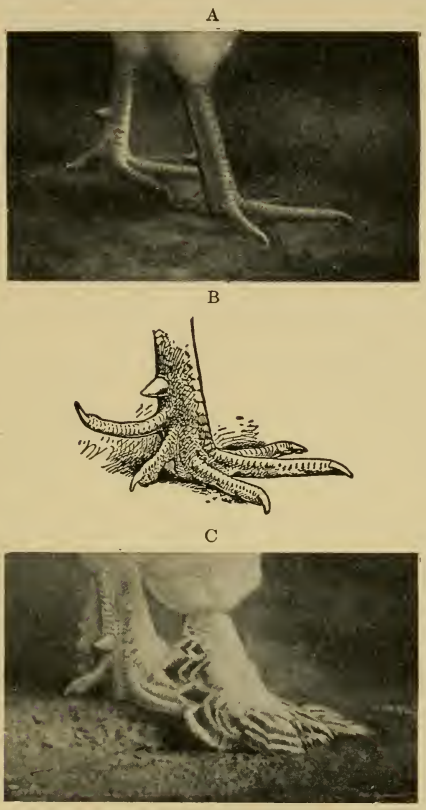
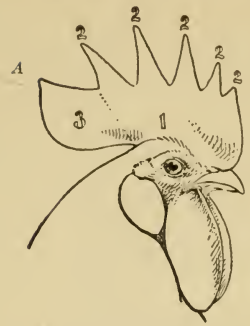
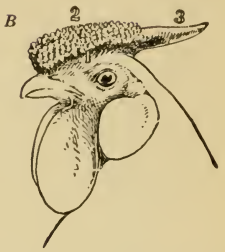


FIG. 2.—Shanks and feet; A, four toes and smooth shanks; B, five toes and smooth shanks; C, feathers on shanks and toes.

different breeds, we should gain some idea of the colors and color combinations which are the distinguishing marks of the varieties.

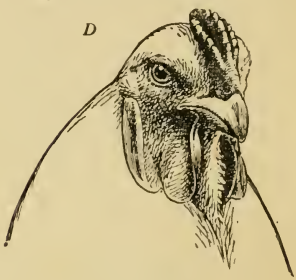


A type of Single Comb (ideal). 1, base; 2, points; 3, blade. For other types see Plymouth Rocks, Minorcas, Javas, etc.

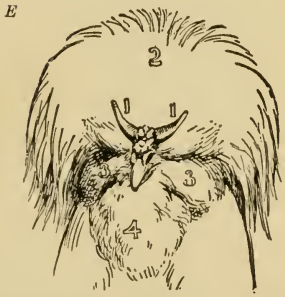


A type of Rose Comb (ideal). 1, base; 2, rounded points; 3, spike. See Diagram of Fowl (Fig. 1.) for ideal Wyandotte comb.

Pea Comb, profile (ideal).



Pea Comb, quartering view (ideal).



Sultan Head, male (ideal). 1, V-shaped comb; 2, crest; 3, muffs; 4, beard.

Strawberry Comb (ideal).

FIG. 3.—Different kinds of combs

Fig. 4 shows the parts of a feather and gives their names. In case a chicken is of a solid color, that fact is indicated in the name so it is not necessary to discuss the solid-col-

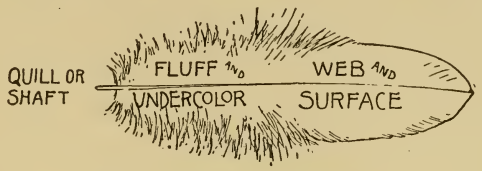


Fig. 4.—Sections of a feather.

ored varieties here. Where the feathers are marked, however, the naming of the varieties is much more difficult.

A feather with a black edging on the outer edge of the

Fig. 5.

Fig. 5.—Laced feather.

Fig. 6.

Fig. 6.—Spangled feather.

Fig. 7.

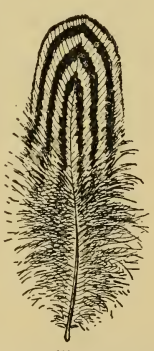


Fig. 7.—Penciling, crescentic form (ideal).

web, is called a *laced feather* (Fig. 5). The color of the centre of the feather determines the color of the bird. If the centre is white, the color is said to be silver; if it is bay,

the color is called golden. Good examples of such naming of varieties are the Silver and Golden Wyandottes.

A feather, tip of which is black, is called *spangled feather* (Fig. 6). Accordingly, a white feather with a black point is said to be silver spangled; while a bay feather with a black point is called golden spangled.

Sometimes feathers are said to be *penciled* with dark lines. These lines may either follow the outline of the

FIG. 8.

FIG. 8.—Penciling, parallel form, (ideal).

FIG. 9.

FIG. 9.—Barred feather (ideal).

feather as in Fig. 7, or may run straight across the feather, as in Fig. 8. The latter kind of penciling is shown clearly in the Campine varieties, while the outline, or crescentic, kind is shown in the Dark Brahma, and in all partridge varieties.

As is the case with the laced feather, the background of a penciled feather gives the color. If the lines are against a white ground, the color is called silver; if against a bay

ground, golden. In case there is a black line around a white feather, as in Fig. 7, the color is called silver penciled. The Dark Brahma, although called "dark," is a good example of a silver-penciled fowl. When there is a black border around a bay feather, the color is said to be par-

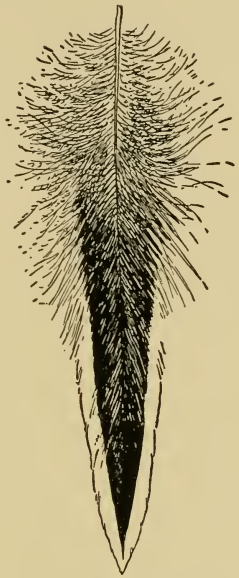


FIG. 10.—Striped neck (hackle) feather, male (ideal).

tridge. The Partridge Cochin is typical of this type of coloring. If a fowl is marked with black-and-white bars, running parallel across the feathers, we say that it is *barred* (Fig. 9). The Barred Plymouth Rock is, perhaps, the best known illustration of a barred chicken.

As shown in Fig. 10, the neck feathers of many male birds have a peculiar marking, different in color from the body feathers.

REVIEW

1. Give origin and history of the large, meat type of fowls.
2. Give origin and history of the small, egg type of fowls.
3. Give origin and history of the dual-purpose type.
4. Explain the meaning of "class."
5. What was the origin of domestic turkeys, ducks and geese?

QUESTIONS

1. Explain what is meant by "breed."
2. Describe the different types of fowls' feet.
3. What is meant by "variety?"
4. Name and describe five different kinds of combs.
5. Which do you think is the most common?
6. Name the parts of a feather.
7. Describe two different kinds of penciling.
8. Describe a barred feather.
9. Describe a striped feather.
10. What is the difference between a laced and spangled feather?

HOME WORK

Collect as many differently marked feathers as possible. Locate the parts of each. Fasten the best specimen of each marking on a card for future reference.

LESSON IV

Breeds and Varieties

We have learned that class indicates the region in which any type of fowls originated; that breed is determined by size and shape; that the word "variety" is used to designate differences in color or comb. There is one other term used in classifying fowls. This term is *strain,* which has practically the same meaning as "family." For instance, if John Smith should grow White Wyandottes for a number of years, we would classify his fowls as American Class, Wyandotte Breed, White Variety, and Smith Strain.

Learn the following chart of characteristics so that you can write it from memory:

Name	Size	Colors	Combs	Shanks
Barred Plymouth Rock	Medium	Black and White	Single	Smooth yellow
White Plymouth Rock	Medium	White	Single	Smooth yellow
Buff Plymouth Rock	Medium	Buff	Single	Smooth yellow
White Wyandotte	Medium	White	Rose	Smooth yellow
Silver Wyandotte	Medium	Black and White	Rose	Smooth yellow
Buff Orpington	Large	Buff	Single	Smooth white
White Orpington	Large	White	Single	Smooth white
Buff Cochin	Large	Buff	Single	Feathered—yellow
Partridge Cochin	Large	Red and Black	Single	Feathered—yellow
Light Brahma	Large	Black and White	Pea	Feathered—yellow
Dark Brahma	Large	Black and White	Pea	Feathered—yellow
Black Langshan	Large	Black	Single	Feathered—bluish black
S. C. Black Minorca	Medium	Black	Single	Smooth and dark
S. C. White Leghorn	Small	White	Single	Smooth yellow
S. C. Brown Leghorn	Small	Red and Black	Single	Smooth yellow
S. C. Buff Leghorn	Small	Buff	Single	Smooth yellow
S. C. Rhode Island Red	Medium	Red and Black	Single	Smooth yellow
Cornish	Medium	Red and Black	Pea	Smooth yellow
Houdan	Medium	Black and White	V-Shape	Dark crest and five toes
Silver Spangled Hamburg	Small	Black and White	Rose	Smooth

Leghorns, Minorcas and R. I. Reds are also bred with Rose Combs

REVIEW

1. Describe the differences in fowls' feet.
2. Describe the differences in fowls' combs.
3. Name the parts of a feather.
4. Describe the different feather markings.
5. What is the difference in feather markings of the silver and partridge varieties?

QUESTIONS

1. Name the white varieties and give their characteristics.
2. Name the buff varieties and give their characteristics.
3. Name the black varieties and give their characteristics.
4. Name the varieties which have yellow shanks.
5. Name the varieties which have feathered shanks.
6. Compare the White Leghorns and White Plymouth Rocks.
7. Compare the Buff Leghorns and Buff Orpingtons.
8. Compare the Cornish fowls and the Partridge Cochin.
9. Compare the Houdan and the Silver Spangled Hamburg.
10. Name the black-and-white fowls mentioned in the preceding chart.

HOME WORK

See if you can find a fowl which has feathered shanks, but which should have smooth ones.

LESSON V

Breeds and Varieties (Continued)

Study carefully the characteristics of each variety of chickens pictured in figures 11 to 30.

REVIEW

1. Name the solid-colored fowls we have studied.
2. Name the black-and-white fowls.
3. Name the black-and-red fowls.
4. Name the fowls having feathered shanks.
5. Describe the different combs we have studied.

QUESTIONS

1. Tell the characteristics of each fowl represented in Lesson V.
2. A fowl is medium in size, white-and-black in color, and has a rose comb, and smooth yellow shanks. Give class, breed, and variety.
3. A fowl is small and white, and has a single comb and smooth, yellow shanks. Classify.
4. A fowl is large, black, has a single comb and feathered shanks. Classify.
5. A fowl is large, black-and-white, has a pea comb and feathered shanks. Classify.
6. A fowl is large, black-and-red, with a single comb, and feathered shanks. Classify.
7. Let each pupil describe a fowl, and let the rest of the class name it.
8. What colors are characteristic of the fowls we have studied?
9. Name the fowls having smooth shanks.
10. Name the fowls having feathered shanks.

HOME WORK

Tell the characteristics of all the pure varieties that you see on the road to and from school.

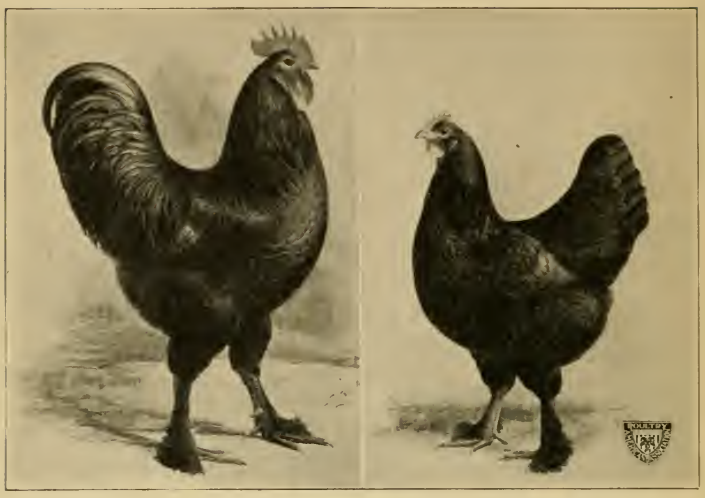


Fig. 11.—Black Langshans.

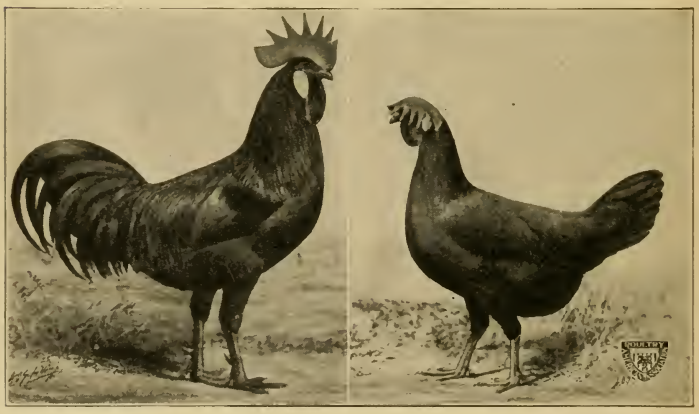


Fig. 12.—Single Comb Black Minorcas.

FIG. 13.—Buff Cochins.

FIG. 14.—Single Comb Buff Leghorns.

Fig. 15.—Buff Plymouth Rocks.

Fig. 16.—Single Comb Buff Orpingtons.

FIG. 17.—White Plymouth Rocks.

FIG. 18.—Single Comb White Orpingtons.

FIG. 19.—Single Comb White Leghorns.

FIG. 20.—White Wyandottes.

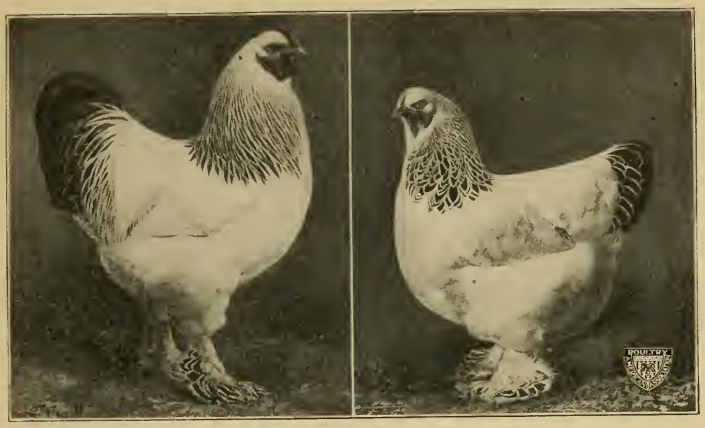


FIG. 21.—Light Brahmas.

FIG. 22.—Dark Brahmas.

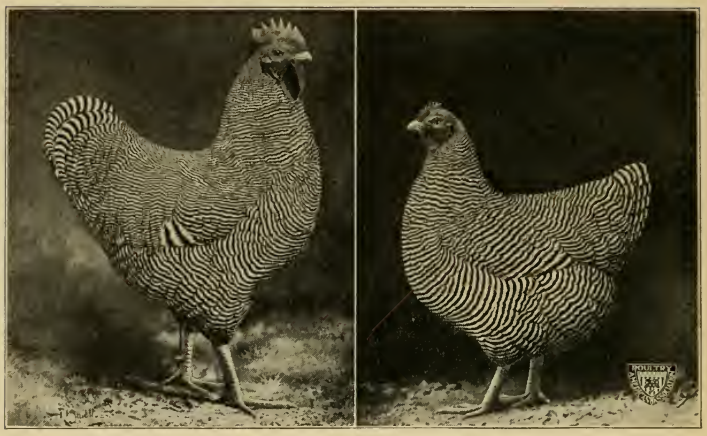


Fig. 23.—Barred Plymouth Rocks.

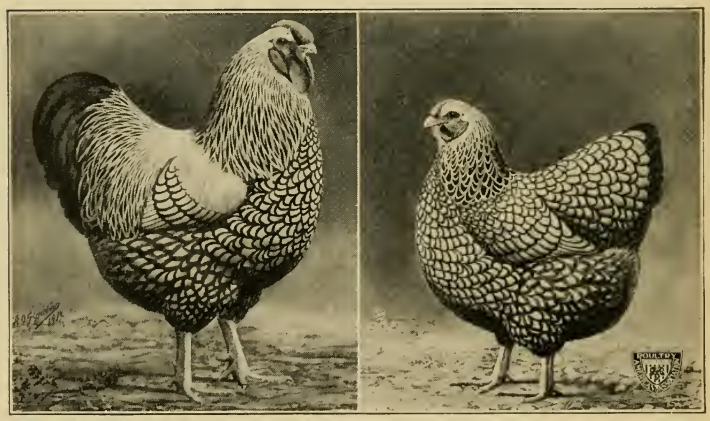


Fig. 24.—Silver Wyandottes.

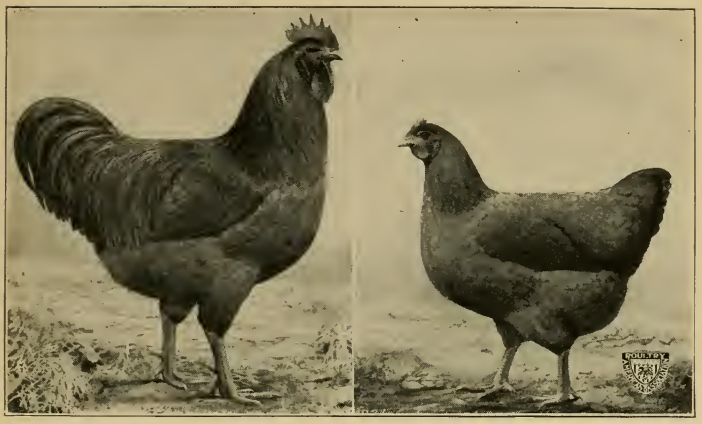


FIG. 25.—Single Comb Rhode Island Reds.

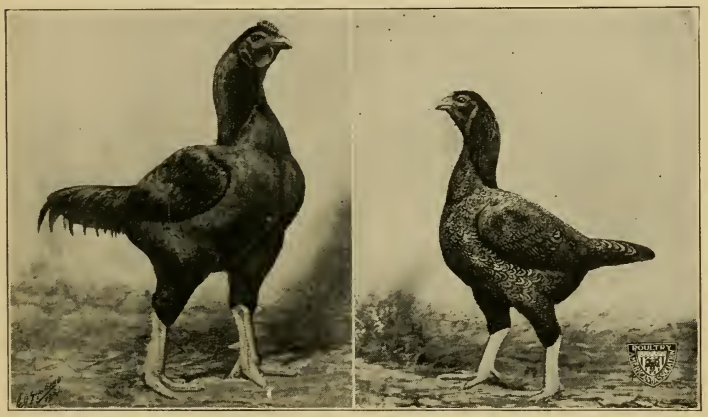


FIG. 26.—Cornish.

FIG. 27.—Partridge Cochins.

FIG. 28.—Single Comb Brown Leghorns.

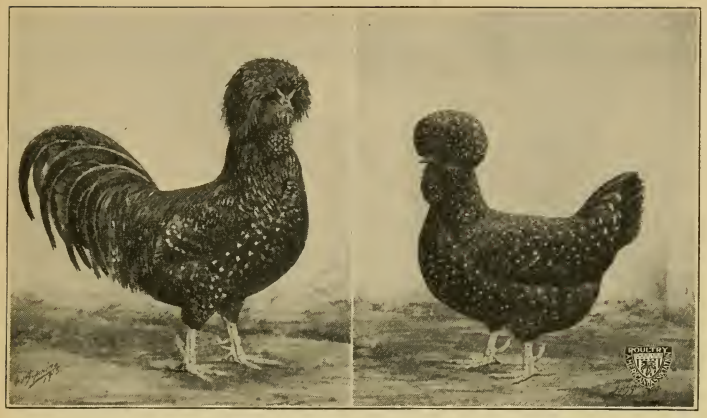


FIG. 29.—Houdans.

FIG. 30.—Silver Spangled Hamburgs.

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LESSON VI

Breeds and Varieties (Continued)

Let each pupil bring to school a good specimen of the variety of fowl grown at home (Fig. 31). Number the fowls and, if coops are not handy, tie each one's feet together

Fig. 31.—Children describing breeds and varieties.

and place the fowls on the floor, with numbers on the wall above them. Let each pupil make a blank card and fill it in with the names and characteristics of the fowls exhibited, to correspond with the chart on Page 13. The children should

note carefully whether or not all the characteristics of the fowls are as they should be.

THE JUNGLE FOWL (GALLUS BANKIVA)

Historical data regarding the origin of our domestic fowls is not available to any great extent, but there are many points of similarity in the habits, color and form of the Wild Jungle Fowl that point to its being the probable ancestor of our domestic poultry. Many scientists working independently of each other have come to this same conclusion. The Jungle Fowl (*Gallus Bankiva*) agrees very closely in shape and color with the Black Breasted Red Game Bantams, with the exception of being somewhat larger in size. This wild fowl will very readily cross with many of our domestic fowls.

LESSON VII

Turkeys, Ducks and Geese

The turkey is an American fowl (Fig. 32). When this country was first discovered, whole flocks of the large stately birds were found wild in the woods. They wandered about

Fig. 32.—Bronze turkey.

catching insects and picking up seeds and berries for food. At night they perched in the trees. Although at the present day there are comparatively few wild turkeys left in this country, those that have been domesticated retain many of the characteristics of their wild ancestors. They do much better if allowed to wander through fields and pastures,

foraging for their food, than if they are penned within the limited space of a poultry yard.

The domestic turkey is larger than the wild one. The following table shows the Standard varieties and weights:

	2-year old male	1-year old male	Less than 1-year old male	1-year old female	Less than 1-year old female
Bronze	36 lb.	33 lb.	25 lb.	20 lb.	16 lb.
Narraganset ...	30 lb.	25 lb.	20 lb.	18 lb.	12 lb.
White Holland ..	28 lb.		20 lb.	18 lb.	14 lb.
Black Holland ..	27 lb.		18 lb.	18 lb.	12 lb.
Buff Holland ..	27 lb.		18 lb.	18 lb.	12 lb.
Slate Holland ..	27 lb.		18 lb.	18 lb.	12 lb.
Bourbon Holland.	30 lb.		22 lb.	18 lb.	14 lb.

Ducks are water fowls directly descended from the wild ducks which are found everywhere throughout the Northern

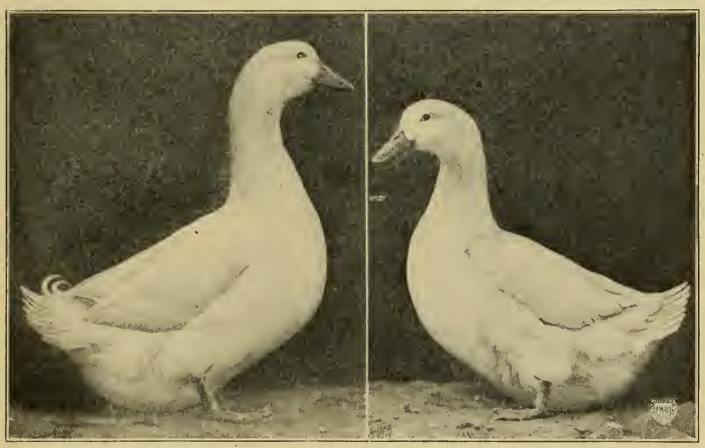

FIG. 33.—Pekin ducks.

Hemisphere, nesting in the North and migrating to the South for the winter. Like all true water fowls they have

webbed feet, adapted to swimming. Their mouth parts are much larger than the mouth parts of chickens, and are called bills instead of beaks. There is a little strainer arranged on either side of the mouth, so that water can be taken in at the front of the bill, and passed out through the strainers,

FIG. 34.—Runner ducks.

leaving in the mouth any particles of food that may have been present in the water. The females of these fowl are called ducks, and the males drakes.

Ducks are grown for their meat, eggs, and feathers. The Pekin (Fig. 33) and Runner ducks (Fig. 34) present the two extremes in types, the Pekin being the meat and feather type, while the Runner is the egg type.

It is not necessary for domesticated ducks to have water to swim in. However, since they require much water to drink, they do best where they can have access to fresh, running water all the time.

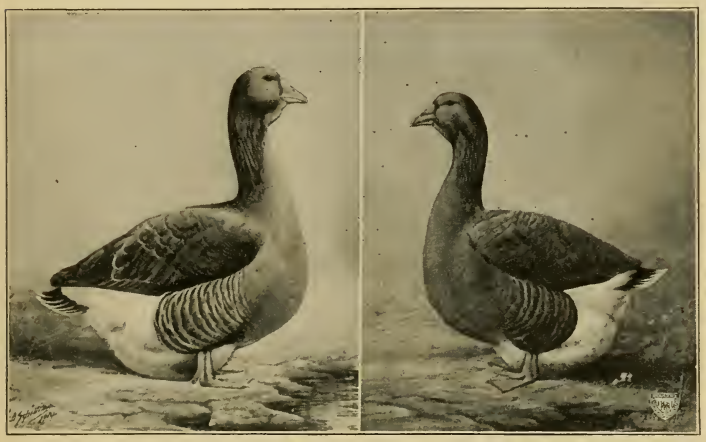

FIG. 35.—Toulouse geese.

The following table shows the Standard varieties and weights of ducks:

Breed	Variety	Adult drake	Young drake	Adult duck	Young duck
Pekin	White	9 lbs.	8 lbs.	8 lbs.	7 lbs.
Aylesbury	White	9 lbs.	8 lbs.	8 lbs.	7 lbs.
Rouen	Colored	9 lbs.	8 lbs.	8 lbs.	7 lbs.
Cayuga	Black	8 lbs.	7 lbs.	7 lbs.	6 lbs.
Crested	White	7 lbs.	6 lbs.	6 lbs.	5 lbs.
Muscovy	Colored	10 lbs.	8 lbs.	7 lbs.	6 lbs.
Swedish	Blue	8 lbs.	6½ lbs.	7 lbs.	5½ lbs.
Runner	Fawn and white	4½ lbs.		4 lbs.	
Call	Gray	Appreciated for their smallness			
Call	White				
East India	Black				

Geese are water fowls with bills and webbed feet very much like those of ducks. They are grown more for their flesh and feathers than for their eggs, and they do best where they have good grass pasture and plenty of fresh water. The male is called a gander, and the female a goose (Fig. 35).

The table which follows gives the Standard breeds, varieties and weights:

Breeds	Varieties	Adult gander	Young gander	Adult goose	Young goose
Toulouse	Gray	25 lbs.	20 lbs.	20 lbs.	16 lbs.
Embden	White	20 lbs.	18 lbs.	18 lbs.	16 lbs.
African	Gray	20 lbs.	16 lbs.	18 lbs.	14 lbs.
Chinese	Brown	12 lbs.	10 lbs.	10 lbs.	8 lbs.
Chinese	White	12 lbs.	10 lbs.	10 lbs.	8 lbs.
Wild or Canadian	Gray	12 lbs.	10 lbs.	10 lbs.	8 lbs.
Egyptian	Colored	10 lbs.	8 lbs.	8 lbs.	6 lbs.

REVIEW

1. What varieties of chickens confuse you the most?
2. Give the characteristics of the Barred Plymouth Rock.
3. Give the characteristics of the Rhode Island Red.
4. Give the characteristics of the Buff Orpington.
5. Compare a White Wyandotte and a White Orpington.

QUESTIONS

1. Name the varieties of turkeys.
2. Where is their native home?
3. Which variety is the most common?
4. Name the varieties of ducks.
5. What are they raised for?
6. Describe the mouth parts.
7. What are the males called?
8. What are Runner ducks noted for?
9. Name the varieties of geese.
10. What is their principal value?

LESSON VIII

Judging

At all contests and shows the judges must have some uniform standard by which they can make their decisions. The guide used in judging the poultry at the various exhibitions held in America is a book called the *American Standard of Perfection,* which is published by the American Poultry Association. Since this association is composed of the leading poultry breeders of the country, it is naturally the highest authority on poultry in America. It decides many of the questions that arise in connection with the poultry industry. It also decides the points which are necessary to make a perfect fowl, and names the percentage which, in judging, must be deducted from the grade of each section that is not perfect. All of these particulars are to be found in the *Standard of Perfection.*

Page 36 shows a score card used by judges in marking fowls. The percentage taken off for a defect in the shape of any section is placed in the first column, and that taken off for defective color is placed in the second column. The deductions are then added; and their sum, subtracted from one hundred, leaves the fowl's score. During the fall sea-

son, fowls are usually judged by comparison; that is, the judges carefully compare the competing birds section by section, and award the prizes to the best fowls.

There are some defects which are so serious as to disqualify a fowl and prevent it from winning a prize. There is not space to list all of these disqualifications here, but the following list will give some idea of the kinds of defects which make a chicken unfit for exhibition.

In all breeds required to have unfeathered shanks, any feathers or stubs or down on shanks, feet, or toes, or unmistakable indications of feathers having been plucked from same.

A wing showing clipped flights or secondaries, or both, except in water fowls.

Lopped combs, except in Mediterranean and Dorking females; rose combs falling over to one side or so large as to obstruct the sight; combs foreign to the breed; split or fish-tail combs; side sprig on all single-comb varieties; decidedly wry tails; crooked backs; plucked hocks; deformed beaks; absence of spike in all rose-comb varieties, except Silkies, Malays and Malay Bantams; decidedly squirrel tail in all breeds except Japanese Bantams.

In four-toed breeds, more or less than four toes on either foot.

In five-toed breeds, more or less than five toes on either foot.

Legs and toes of color foreign to breed.

Entire absence of main tail feathers.

Some defects are not serious enough to disqualify the specimen. For these, a percentage is deducted from the grade, or score. In applying the score card, judges are to discount for the more common defects as follows:

Too many or too few points on comb, each	½ point.
Rear of comb turning around	½ to 1 point.
Coarse texture of comb	½ to 1 point.
Coarse texture of wattles	½ to 1 point.
Missing feather or part of feather in primaries or secondaries where foreign color disqualifies	1 to 3 points.
Irregular barring in Barred Plymouth Rocks, in each section where found	½ to 1½ point.
Tail in any variety showing not to exceed ¼ development	3 points.
Crooked toes, each	½ to 1 point.

The greater number of fowls score between 85 and 95.

To be filled out on A. P. A. Card in Standard.

OFFICIAL SCORE CARD

Exhibitor.....

Variety..... *Sex*.....

Entry No..... *Band No*..... *Weight*.....

	Shape	Color	Remarks
Symmetry			
Weight or Size			
Condition			
Comb			
Head			
Beak			
Eyes			
Wattles, Ear Lobes			
Neck			
Back			
Tail			
Breast			
Body and Fluff			
Legs and Toes			
† Crest and Beard			
* Short of Feather			

Total Cuts..... Score.....

.....*Judge*

.....*Secretary*

† Applies to crested breeds. * Applies to Games and Game Bantams.

REVIEW.

1. Name the varieties of turkeys.
2. Name the varieties of ducks.
3. Name the varieties of geese.
4. What are the valuable qualities of ducks?
5. What are the valuable qualities of geese?
6. What are the valuable qualities of turkeys?

QUESTIONS.

1. What is the authority on poultry in America?
2. What is the judge's guide in making his decisions?
3. What is a score card?
4. How is it used?
5. How is the score found?
6. What method of judging is there in addition to judging by card?
7. What is meant by disqualification?
8. Name a disqualification.
9. What is meant by defect?
10. Describe a defect which is not a disqualification; and tell how such a defect should affect a fowl's score.

HOME WORK.

Make a score card. Judge the sections of a fowl and fill out the card, using your own idea of how each section should be graded.

LESSON IX

Housing

One of the most important questions connected with the care of poultry is that of housing, for the health of the fowl

Fig. 36.—A building which insures good circulation of air.

depends largely upon the surroundings while it is asleep. The primary consideration in building a poultry house is to insure a good circulation of air (Fig. 36). Since many of the impurities of a chicken's body are carried off through its breath, an abundance of fresh air is essential. Under no circumstances should a poultry house be kept too warm.

A chicken is provided by nature with feathers to protect it against severe weather; accordingly it should not be expected to thrive in as warm a house as a man can live in.

The location for the house should be chosen very carefully. A high, well-drained place, if possible on sandy soil, will prove the most desirable. The structure should face south so as to receive sunlight and air from that direction;

Fig. 37.—The location of the house should face south with door located in the southeast corner.

and the door should be located in the southeast corner (Fig. 36). If a droppings board is used on the north side, windows should be placed under the board to distribute light to all parts of the floor.

The house should conform in size to the number of fowls it is intended to shelter. On the average farm, where two horses, two cows, and a few hogs are kept, it is considered profitable to keep from eighty to one hundred hens; for that

number will be able to get along with the grain and scraps they pick up, and will not require much extra food. If a flock of this size is allowed free range, it can easily be accommodated in a house 16 × 20 feet, which will allow between three and four square feet of floor space to each fowl.

FIG. 38.—Colony house.

Though various materials are used in building poultry houses, wood gives the best satisfaction. Concrete floors are good, but concrete walls make the house too damp.

The plans shown in Figures 36 and 37 are both practical. One is for a house with an open front which will admit both air and light. The other has slat ventilators to

admit air, and windows for lighting purposes. The arrangement of the rooms will be discussed in the lesson on equipment.

Some especial provision must be made for the housing of young chicks, for they are not old enough or strong enough to protect themselves against changes in the weather, and are apt to crowd together if the nights are chilly. A colony house (Fig. 38), about 8 × 12 feet in size, with a front like that of one of the larger poultry houses, should prove an effective shelter for the young stock. The brooders can be placed within such a house, and can be left there until the chicks are from five to seven weeks old, when the brooders are removed and fireless hovers substituted. The age at which this transfer can be made depends partly upon the season of the year. When the chicks are large enough to use the roost poles, which are placed about sixteen inches from the floor, the hovers can be removed.

Houses such as this should be built on skids or runners so that they can be drawn from place to place to furnish the chickens with range in summer, and can be drawn together in winter for protection to the fowls.

REVIEW

1. Explain the score card.
2. Name the two methods of judging poultry.
3. What guide is used in judging poultry?
4. What would be the condition of contests without a guide for judging?
5. What is a defect?

QUESTIONS

1. Why do poultry need a house?
2. Should a poultry house be warm enough for man?
3. How large should the house be?
4. Explain why a house should face the south.
5. Where should the openings be?
6. What kind of material should be used?
7. Describe the colony house.
8. Tell how it should be equipped.
9. Give size of colony house.
10. Should chicks be kept in the house? If so, when?

HOME WORK

Measure the poultry house at home and estimate the number of birds it will accommodate, allowing three square feet of floor space per fowl.

LESSON X

Equipment

Since the poultry house is the home of the poultry, it should be equipped for their comfort with roosts, nests, feed hoppers, drinking fountains, etc. The roosts are of especial

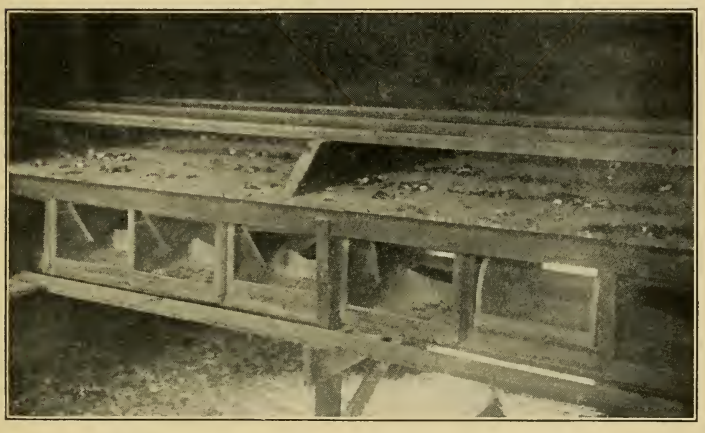

Fig. 39.—Section of house showing roosts, dropping boards and nests.

importance. They should be about three or four feet from the floor, and on a level, so that the chickens will not crowd to the highest perch. Sawed sticks about two inches square, with the top corners rounded, make good roosts (Fig. 39). About eight or ten inches under them, a droppings board should be placed, so that the entire floor of the poultry

house may be used for scratching room. The roosts should be movable so that they can be taken out when the droppings board is to be cleaned.

If the nests are on the floor of the house, the hens are often tempted to eat their eggs. Accordingly, one good, clean raised nest should be provided for each four hens.

FIG. 40.—Indoor feed hopper.

These nests should be kept filled with clean, fresh straw, so that the eggs will be clean and unbroken. A good place for the nests is under the droppings board. (Fig. 39.)

In addition to roosts and nests, feed hoppers and drinking vessels should be provided (Figs. 40 and 41). The feed hoppers, which should be placed so that the fowls can

easily get the food, are to be used only for mash. Grain should be thrown into the litter, so that the birds will get some exercise in scratching for it. The drinking vessels should be such as to insure an abundant supply of fresh water to the fowls all the time. They should be of a kind that is easily cleaned, and should be up off the floor, so that litter cannot be scratched into them. Every care should be

Fig. 41.—Outdoor feed hopper.

taken to keep both feed and water clean and free from disease germs.

Special coops should be provided for the hens that become broody (Fig. 42). These coops should be raised off the ground, and should have a floor made of slats about two inches apart, to insure a circulation of air under the hens. If the hens are kept cool in this manner, they will be

broken of broodiness in a shorter length of time than if there were solid floors in the coops. If broody hens are well housed, and are fed and watered properly so as to keep their

FIG. 42.—Broody coop.

flesh up, they will go back to laying in a few days. If it is desired to set a broody hen, she should be placed separate in a hatching box that will permit her to get to her own nest, but will prevent the other hens from bothering her.

REVIEW

1. Describe a good poultry house.
2. Which way should the house face?
3. Describe the openings.
4. Describe the materials used.
5. Describe a colony house.

QUESTIONS

1. Why should we use feed hoppers?
2. What feed should be given in hoppers? Why?
3. What feed should not be given in feed hoppers? Why?
4. Where should the feed hoppers be placed?
5. Where should the water be placed?
6. Describe a broody coop.
7. Why has it an open slat bottom?
8. How should hens be treated when in broody coops?
9. Describe a hatching box.
10. What are some of the advantages of a hatching box?

HOME WORK

Build either a feed hopper or a broody coop.

LESSON XI

Yarding and Fencing

Every farm should have its poultry yard, which the poultry should recognize as "home." It is not necessary, however, to keep the fowls penned in that yard. On most farms, it is more profitable to fence in lawns and gardens to keep the poultry out, than to pen the fowls in an enclosure; for if the flock is allowed free range, it will pick up most of its food about the farm, eating scattered grain and weed seeds, and catching insects that might otherwise prove harmful to the crops.

It is always wise, however, to have a breeding yard. In this yard should be put the good winter layers; for they are the most profitable hens, since one winter egg is worth two or three summer eggs. Often a flock is allowed to run down through failure on the part of an owner to insure good hatchings. The winter layers are the first to go to sitting in the spring. About the time these hens become broody, the "loafing" hens start to lay; and the good hens are set on the poor hens' eggs. This is a sure method of weakening a flock. If, on the contrary, the winter layers are kept in the breeding yard, and their eggs used for hatching, the flock will be certain to show improvement. Towards the

close of the hatching season, these hens may be turned out with the flock, and the yard used for young chickens.

The fencing of a yard is a very important question (Fig. 43). If the yard is square, or very nearly so, it will be found, as the diagram (Fig. 44) will show, that more ground can be fenced with the same amount of wire used

Fig. 43.—A good poultry yard fence.

than to fence a rectangular yard. Moreover, it will readily be seen that the chickens in yard No. 1 of the diagram can get further from the fence than those in yard No. 2. Accordingly, since they have more freedom, the former chickens will not be so greatly tempted to try to get out. A heavy wire fence six feet high, with a one-inch mesh at

the bottom, makes a good fence for both old and young fowls. Since fowls usually fly to the top of a fence, and then down to the other side, there should be no board or other heavy finish at the top of the fence to afford a perch.

It is a good plan to have two yards for each room of the house, so that the chickens can be shut out of one while

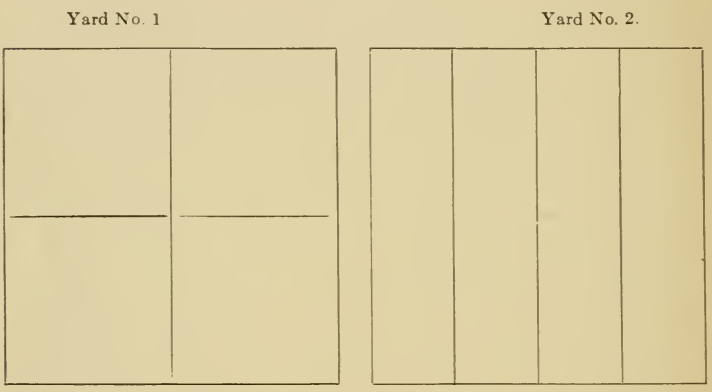

FIG. 44.—Two poultry yards, each divided into four pens. The square yards in No. 1 require less fence than the rectangular yards in No. 2.

green food is being grown in the other. In this way the soil will always be kept fresh and free from disease.

REVIEW

1. How should grain be fed?
2. How should mash be fed?
3. What is the best way to break broody hens?
4. How should broody hens be fed?
5. Describe a hatching box.

QUESTIONS

1. Should poultry have a yard? Why?
2. What are the advantages of a free range?
3. What kind of poultry yards should be fenced?
4. How large should a yard be?
5. What change could be made with the fowls in a pen?
6. How do fowls get over the fence?
7. What shape should the yard be?
8. Give some advantages of this shape.
9. Why should the yard be divided?
10. What kind of fence is best and why?

HOME WORK

How many farms do you know of which have a poultry yard separate from other yards?

LESSON XII

Feeds and Feeding

In their wild state, fowls wandered at will, and got their food by hunting and scratching for seeds, insects, worms, and so forth. With unlimited range, and all sorts of foods at their disposal, it was an easy matter for them to get foods containing the necessary elements for proper nourishment. Now that fowls have become domesticated, however, it is necessary for those who raise them to make sure that they are provided with food containing body-building substances, as well as egg-forming material, if eggs are desired.

There are two classes of foods necessary to the proper nourishment of an animal's body. One consists of protein, the muscle builder, which is composed chiefly of nitrogen. The other consists of the carbohydrates, which build fat and supply heat and energy. Sugar and starch are among the chief carbohydrates. Fat answers the same purpose as sugar and starch, and is two and one-fourth times as valuable.

A fowl should have about one part protein to each five parts of carbohydrates. A ration which has this relation is said to be a *balanced* ration. A ration in which the relation of protein to carbohydrates is as one to four is called a *narrow* ration; that in which the relationship is as one to six is called a wide ration.

In order to determine the relative value of two or more

foods, add all the protein they contain, and then add all the carbohydrates. Divide the sums by the amount of protein. It will be found, of course, that the protein goes into the sum of the proteins once. The number of times it is contained

Fig. 45.—Internal organs of hen; 1, mouth parts, receive food and air; 2, œsophagus, conveys food to crop; 3, crop, for softening food; 4, stomach, secretes digestive fluids; 5, gizzard, grinds food; 6, duodenum, receives pancreatic juice; 7, pancreas, secretes pancreatic juice; 8, liver, stores food and secretes bile; 9, intestine, absorbs nourishing parts of food; 10, cæca, for absorption; 11, cloaca, common opening for intestine, kidney, and oviduct; 12, Ovary, develops yolks of eggs; 13, funnel of oviduct, receives yolk from ovary; 14, Albumen section of oviduct, forms white around the yolk; 15, isthmus of oviduct, forms soft shell; 16, uterus of oviduct, forms hard shell; 17, kidneys, take out impurities; 18, tracheæ (windpipe), conveys air to lungs; 19, lungs, purify blood; 20, heart, keeps up the circulation of the blood; 21, spleen, acts on red blood-corpuscles.

in the carbohydrates will show the relative value of the foods.

The following table gives the amounts of protein and carbohydrates in certain foods, together with their relative value. From this table select feeds to make a balanced ration.

DIGESTIBLE CONTENTS OF VARIOUS POULTRY FOOD

Foodstuffs	Percentage of Protein	Percentage of Carbohydrates and Fats	Nutritive Ratio
Barley	8.75	67.24	1:7.7
Buckwheat	8.1	53.6	1:6.9
Broom corn	7.52	57.66	1:7.8
Indian corn	8.6	73.2	1:8.5
Kaffir corn	7.5	76.5	1:10.3
Flax seed	20.6	82.35	1:4.0
Oats	9.2	56.7	1:6.2
Cow peas	18.3	56.7	1:3.1
Millet seed	19.63	43.38	1:2.2
Rice	5.3	68.3	1:11.8
Rye	7.5	66.1	1:8.8
Sorghum seed	7.0	59.1	1:8.4
Soy bean	29.6	54.7	1:2.0
Sunflower seed	12.1	86.1	1:7.1
Wheat, plump	9.2	63.8	1:6.9
Wheat, shrunken	9.8	64.3	1:6.5
Alfalfa meal	12.3	40.7	1:3.3
Buttermilk	4.0	5.5	1:1.4
Skim milk	3.3	7.5	1:1.7
Whole milk	3.6	13.2	1:3.7
Dried milk	51.2	18.6	1:0.4
Beef scraps	54.0	29.6	1:0.5
Dried blood	78.6		
Green cut bone	27.8	5.8	
Wheat bran	12.62	43.9	1:3.4
Wheat middlings	12.2	61.9	1:5.1
Wheat shorts	13.02	54.5	1:42
Cracked corn	6.7	74.0	1:11.2
Steel cut oats	10.6	66.3	1:6.2
Corn meal	6.4	73.9	1:11.5
Rolled oats	9.5	65.5	1:7.2
Cottonseed meal	41.1	40.4	1:1.0
Gluten meal	25.8	74.8	1:2 9
Linseed oil meal (old process)	24.4	61.6	1:2.5
Linseed oil meal (new process)	26.1	53.1	1:2.0

Although proteins and carbohydrates are the main elements needed for the nourishment of fowls, there are other essential elements. Most of these are present in the foods that contain the proteins and carbohydrates, but there are some few elements that must be supplied. Among these are common salt (sodium chloride), which should be given to fowls, as to other animals. Care should be taken in regulating the amount, however, as too much salt proves injurious.

Other minerals, such as lime, the fowls get from gravel, sand, ground oystershell, etc. These hard, sharp particles serve two purposes: they grind the food in the gizzard of the fowl, as well as furnish minerals. It is always well to remember in this connection that poultry do not grind their food in their mouths, as most animals do, but in their gizzards. Accordingly, part of the food should be ground before being fed to the fowl, as an aid to digestion.

The following ration is good for laying hens. If the fowls are allowed free range, however, the food they pick up outside should be considered in feeding them.

DRY MASH

Corn meal	100 lbs.	Shorts	40 lbs.
Ground oats	100 lbs.	Beef scraps	20 lbs.
Wheat bran	100 lbs.	Fine salt	2 lbs.

The grain fed with this ration should be composed of

equal parts of cracked corn and wheat, and should be scattered in the litter morning and evening.

Charcoal and grit should be before the fowls all the time.

In order to fatten fowls, they should be confined in a coop and fed a wide ration, which contains a large percentage of carbohydrates. Corn meal and shorts, moistened with buttermilk, make a good food for fattening.

Plenty of fresh, clean water should be before the fowls at all times.

REVIEW

1. Tell how fowls get over fences.
2. Describe a good poultry fence.
3. Give size and shape of a farm poultry yard.
4. What advantage is there in fencing the poultry yard?
5. What disadvantage?

QUESTIONS

1. How do fowls grind their food?
2. Give the two values of grit.
3. What are the two classes of foods needed?
4. What is protein and what does it do?
5. What are carbohydrates and what do they do?
6. What is a "balanced ration" and how do you figure a ration where several feeds are combined?
7. What is a narrow ration? A wide ration?
8. Give a good ration for laying hens.
9. Give a good ration for fattening fowls.
10. Name the digestive organs of a fowl and tell the work done by each.

HOME WORK

Mix a balanced ration for laying hens and bring a sample of the mixture to school.

LESSON XIII

Feeding the Baby Chicks

About the time a baby chick is ready to leave its shell, it draws the yolk of the egg into its body. Nature has given this yolk to the chick as a sort of lunch basket which contains food enough to last for several days. This is a wise provision on the part of Dame Nature, for the little chick is very

Fig. 46.—Digestive organs of a baby chick; 1, crop, in which food is softened; 2, stomach, in which digestive juices are mixed with the food; 3, gizzard, in which the grinding is done by means of small pieces of stone, called grit; 4, intestines; 5, yolk, which serves as food for the baby chick for the first few days after it comes out of the shell; 6, Cœca or blind pouches. Much of the digested foods enter these, the nourishing parts being absorbed.

weak for some time after leaving the egg and does not know just what to eat nor where to find it. The yolk furnishes it with food until it grows strong enough to shift for itself. (Fig. 46).

The baby chick should not be fed until it has used at least a part of this yolk. It is not well, however, to wait too long before feeding it. If the chick grows too hungry, it is

likely to gorge itself. From twenty-four to forty-eight hours after hatching is a good age at which to begin feeding. Only a small quantity of food should be given to begin with, but the amount should be gradually increased as the yolk is used.

Some claim that sour milk or buttermilk, if given to the chick before any food is given, will have a medicinal value in controlling diseases of the intestines. It will at least do no harm to give the chicks a few drops of the milk, which is a valuable food. All through the chick's life buttermilk and sour milk are very beneficial and, to some degree, take the place of meats.

The first day's feed for the chick may be of hard boiled egg, ground up fine, shell, yolk and white thoroughly mixed. If the shell is not included in the mixture, some fine sand should be sprinkled over the food. Grit or sand should not, however, be given to chicks in quantities during the first few days; for the chicks are likely to eat too much of it.

The feed for the second and third days should be a mixture of boiled eggs, bread crumbs, and oatmeal. The egg and bread crumbs should be gradually omitted, and wheat bran added to take their place. When the chick is about a week old, it may be given a good grade of chick feed for grain, and a mixture of corn meal, oatmeal, and wheat bran for mash. At the age of two months, chicks may be fed the ration for laying hens.

REVIEW

1. Name the digestive organs of a fowl.
2. Explain a "balanced ration."
3. Explain a "wide ration;" a "narrow ration."
4. Give a ration for laying hens.
5. Give a ration for fattening poultry.

QUESTIONS

1. What is the yolk of an egg for?
2. How long will the yolk last the baby chick?
3. Where does the yolk enter the intestine?
4. When should the first feed be given to the baby chick?
5. What should its first feed be?
6. When and how should grit be given?
7. What is the danger in waiting too long to feed the chick?
8. What should the chick's feed be the second week?
9. At what age should it be given the ration for laying hens?
10. Is sour milk a good food?

HOME WORK

Kill a hen at home and examine the digestive organs; name each organ as you locate it.

LESSON XIV

Mating

Experiments have proved that it is best to keep the various breeds and varieties pure. It is a risky business to attempt cross-mating. Those who practise it usually fail, and find it necessary to begin all over again. Those who wish to experiment, should try cross breeding with only a few chickens. The main flock, to produce the best results, should be kept pure.

In order to improve the farm flock, it is a good practice to select the best fowls and place them in a pen by themselves, and to hatch from this pen only. If eggs for hatching are taken from the entire flock, the results are uncertain, and failure is likely. Only those fowls should be selected which have constitutional vigor. It is not necessarily the largest chickens that are the best. Other characteristics than size should be considered. The fowls should have clear voices, and prominent, clear eyes. They should stand firm, with their feet flat on the ground and their toes well spread. The toes should have short nails, and the knees should be set well apart. If the chickens are in good condition, they should be quick and active, and should get out early in the morning and stay out late at night.

The shape of the fowls is a very important consideration. Hens which are wedge shaped—narrow in front and wide behind—are usually the best egg producers. The blocky, square or rectangular shape is the best for meat production. Under no circumstances should fowls which show weaknesses of any kind be used for breeding. All those should be discarded which have any prominent defects, such as crooked backs or breast bones, wry tails, single combs in rose comb varieties, or rose combs in single comb varieties, feathers on shanks, in smooth-shank varieties, or smooth shanks in feathered-shank varieties.

It is the tendency among fowls of the parti-colored varieties, for the males to become lighter and the females darker in color through breeding. In order to produce males and females of the same color, it is necessary to have two breeding pens. One of the pens should be used for fowls lighter in color than wanted, and the other for darker fowls. The first pen will produce females of the desired color, and the second will produce males of the desired color. This method, which is called *double mating,* is practised by some fanciers to produce exhibition fowls.

If males and females from the same pen are kept together for breeding, the results are likely to be bad. This practice is called *in-breeding.* In order to avoid it, some breeders keep two pens or lines which were originally from the same pen. The fowls are mated from these two lines.

The results of this method, which is called *line breeding,* are likely to be good; for, while the fowls are of the same blood, they are distantly related.

REVIEW

1. What is the yolk of an egg for?
2. When should the baby chick be fed?
3. What should its first feed be?
4. How should grit be given?
5. Explain the changes in the feed ration for the first two months.

QUESTIONS

1. How can the flock be improved?
2. What is the most important point in selecting breeders?
3. Does the movement of a fowl tell anything of its vigor?
4. Name some points of a good fowl.
5. Name some points of an inferior fowl.
6. What is the egg-producing shape?
7. What is the meat-producing shape?
8. Should breeds and varieties be crossed?
9. What is the breeding tendency of fowls whose color is black-and-white?
10. What is "double mating?"

HOME WORK

Select and mark some good breeders and some poor breeders and write out your reasons for the selection.

LESSON XV

Incubation

It is natural for a hen to lay twelve or fifteen eggs and then to become broody. By selection and careful breeding,

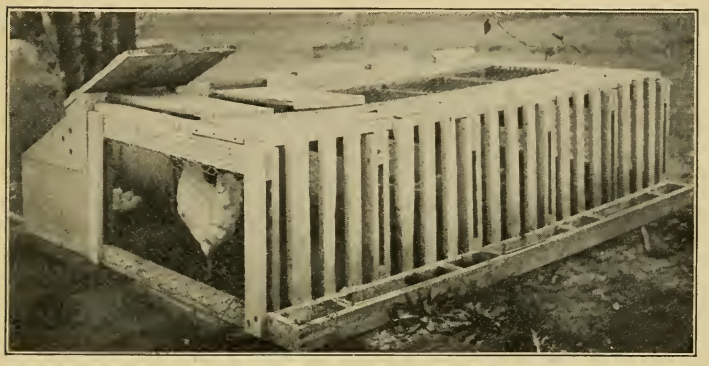

Fig. 47.—Hatching box.

hens have been brought to lay many more eggs than this number; but most hens, sooner or later, want to sit. If it is desired to hatch chicks, a hen should be removed to a hatching box as soon as she becomes broody (Fig. 47). This box should be arranged with a runway in front of the nest so that the hen will be able to get some exercise, and to reach the food and water placed there for her, without bothering

the other hens, or being bothered by them, during the period of incubation.

By incubation we mean the developing of the chick inside of the egg. An egg is composed of four parts; 1st, the living germ, which develops into the chick; 2d, the yolk, which is food for the chick after it leaves the shell; 3d, the white, or albumen, which is food for the embryo while in the shell; and 4th, the shell, which is for protection. The white is

FIG. 48.—This chick is only 24 hours old; it still has the chipper on its beak, yet it is growing some wing feathers.

composed principally of protein and water; and the yolk contains a large amount of fat.

The microscopic germ is located in a small, white spot (the germinal disk) on the top of the yolk. This spot always turns to the top; and if the egg is not moved, the yolk will rise through the albumen so that it can receive the heat from the hen above. If left in this position too long, the embryo will stick to the shell. To avoid this catastrophe, the hen turns the egg two or three times a day.

Air passes through the pores of the shell for use by the embryo as it develops. If the pores are stopped by a coat of oil or dirt, the embryo smothers. If the eggs are permitted to dry out too much, there will not be enough albumen left to make the chick large and strong enough to break the shell and get out, and it will die in the shell.

After about twenty-one days of incubation, the chick is ready to leave its shell (Fig. 48). Although it is not very strong, it is able to make its way through the hard shell without very much difficulty, for Nature has provided it with a hard, sharp point which is fastened to the end of its beak. With the aid of this little instrument, the chick breaks out of its shell. It first makes a little hole in about the middle of the largest part of the egg. Then it turns itself around inside of the egg, breaking the shell as it goes. This makes a broken ring around the egg, so that just a little pressure is needed to force the two halves of the shell apart, and let the little chick out into a big world where all things are strange and new.

The process of incubation goes on just the same whether the eggs are hatched by a hen or by an incubator. An incubator, as you know, is a machine whereby chickens are hatched by artificial heat. As the demand for poultry and poultry products became greater and greater, some such machine became necessary; for men wanted to rear greater numbers of chickens than it was possible to hatch

with hens. There are now many types of incubators, holding from fifty eggs to several thousand eggs each. They are heated by means of oil, coal, gas, or electricity. Hot air, or sometimes hot water, is distributed through pipes which pass through the upper part of the incubator, over the eggs. The temperature is held at 103 degrees for the first week;

FIG. 49.—A brood of chicks hatched in an incubator.

but is increased to 104 degrees the second week, and remains stationary during the rest of the period of incubation. All incubators are self regulating; that is, they have some mechanical device for keeping the heat stationary. They require nothing on the part of the breeder save the keeping up of the fire and the turning of the eggs. This must be

done once or twice a day from the third to the eighteenth day of incubation. The eggs must also be cooled and aired each day for about thirty minutes at the time they are turned. The construction of the incubator is so simple that it is almost impossible to have bad results with them if instructions are followed (Fig. 49).

REVIEW

1. Tell how to improve the flock.
2. Describe a fowl of high vitality.
3. Describe a fowl of low vitality.
4. Describe a good egg type.
5. Describe a good meat type.

QUESTIONS

1. What is incubation?
2. What is the natural method of incubation?
3. Name the parts of an egg.
4. Give the composition of the yolk and albumen.
5. Where is the germ located?
6. How long does it take a chick to develop?
7. Tell something of incubators.
8. Why should eggs be turned?
9. What temperature should be maintained?
10. How does a chick get out of the shell?

HOME WORK

Select a good meat type and a good egg type from among the fowls at home.

LESSON XVI

Brooding

It is natural for the hen to brood her young chicks—that is, to care for them until they are old enough to care for themselves. The good mother does not leave her nest as soon as a few of her chicks are hatched. Often her chicks are two days old before the hen gets off her nest. Even after that she looks after them carefully. She protects them from danger, and shelters them under her wings from cold and rain. She keeps them from going astray and finds food, such as seeds and insects, for them. She valiantly fights off any intruders.

After the chicks are hatched, it is a good plan to place the hen in a brooding coop (Fig. 50). This coop should consist simply of a hover, with a runway in front of it. The runway should be fenced with slats close enough together to keep the hen from getting out, yet not close enough to prevent the little chicks from going through. Such a coop can be placed in the yard or garden, or in any out-of-the-way place. As the chickens grow older, they will learn to range farther and farther, and yet will have the coop to run to in case of danger, and to go to at night.

When chicks must be cared for without the hen, artificial brooders must be used. There are many kinds of brooders.

Some are made to be placed inside a building, while some are built so that they can be used outside. There are heated brooders which are heated by means of oil, coal, gas, or electricity, in much the same manner as an incubator, and fireless brooders which are dependent upon the body heat of

Fig. 50.—Brooding coop.

the chicks. There are brooder stoves made which will heat an entire room.

Of course, natural brooding has some advantages over artificial brooding. A hen will take care of the chicks while the owner is away—will fight enemies such as hawks and

will protect the chicks from sudden showers. There is no danger of fire with a natural brooder, and the chicks are not often smothered by crowding, as they sometimes are in an artificial brooder. But on the other hand, an artificial brooder can take care of many more chicks than a hen; and the dangers it exposes them to are not much more serious than those they are likely to experience when mothered by a hen. Little chicks are often exposed by the hen to vermin. Occasionally they are killed by their mothers, who fight them, step on them, or draggle them through wet grass.

REVIEW

1. Define natural and artificial incubation.
2. Tell all you can about the different parts of an egg.
3. Give the effects of the drying of an egg.
4. Describe fully a hatching box.
5. Describe an incubator.

QUESTIONS

1. What does the hen do for the baby chick?
2. What does the chick do for food just after hatching?
3. What should a chick be fed first?
4. What changes should be made in the food?
5. Describe a good brood coop for hen and chickens.
6. Give some advantages of a brood coop.
7. What is a brooder?
8. Name the different kinds of brooders.
9. Give some advantages of both natural and artificial brooding.
10. Give some disadvantages of each.

HOME WORK

Make a good brood coop for a hen and chickens.

LESSON XVII

Enemies

It is natural for some animals to live by eating plants. Others live by eating both plants and animals; while still others live upon animals alone. The last two classes include the enemies of poultry, such as rats, cats, skunks, hawks, crows, lice, mites, and so forth.

Rats are thought to do more harm to the poultry industry than any other enemy excepting lice. They usually catch little chickens at night, and kill them by biting them through the heads. Then they suck the blood, and drag the dead chickens away and hide them in some out-of-the-way place. Skunks kill chicks in very much the same way as rats, though they usually leave some of the dead chickens where they have killed them, dragging off only one or two to their dens, for food for their young. House cats, also, often catch and kill small chickens during the daytime; but they are very sly about it, so they are usually thought to be innocent. The surest way to combat these enemies is to build the coops and houses so that they cannot get in.

In timbered regions, hawks are a great menace to chicks. The only way to protect the chicks against them is to kill the

hawks. Sometimes they can be shot; or often they can be trapped with a steel trap placed on a high pole near the place where the chicks range.

Crows often prove as dangerous as hawks. If they once start catching little chicks, they will work diligently, sometimes carrying off almost an entire flock in a single day. It is much easier to trap or shoot a crow, however, than a hawk; for the crow seems to forget danger when interested in its prey, while the hawk is always on the alert.

Owls work at night. The screech owl, which makes the wild, weird sound at night, does very little damage to poultry, as it feeds chiefly on mice; but the great horned owl is a powerful enemy. It knocks large fowls off the roost at night, and makes short work of them, while they are stunned by their fall. A steel trap on the top of a pole near the hen roost is usually effective in putting an end to the owl robber.

Although all of these larger enemies are powerful ones, lice and mites are by far the most destructive foes of poultry. The louse is a parasite which makes its home on the body of the fowl, and gets its living by sucking the chicken's blood. There are two effective methods of killing lice. One is by giving the chickens a dusty place to scratch in. The dust fills the breathing pores of the lice, and smothers them. Another way of getting rid of the pests is by the

use of ointments. A good ointment for this purpose is made of one part (by weight) of mercury, three parts of lard, and three parts of tallow, melted together and mixed thoroughly while cooling. A small quantity of this mixture, used about the head and vent of the fowl, usually kills all the lice on its body.

This remedy, however, will not prove effective against mites. Mites make their home in the cracks of the hen house, in the roosts, or in the straw under the nests. They suck the fowl's blood at night, and hide themselves in their homes during the day. Since the pests live on filth when the chickens are not present, it does no good to shut the fowls out of the house for a time unless the house is thoroughly cleaned. The best way to get rid of mites is to remove all straw or litter and then to spray the inside of the house thoroughly with equal parts of crude carbolic acid and coal oil.

It should be remembered that lice and mites weaken the bird until it becomes an easy prey to all sorts of diseases. Often people treat their chickens for various ailments without ever discovering the primary causes—lice and mites. Chickens that are free from these body pests will be likely to thrive better and to prove better paying propositions to their owners than those that, through ignorance or neglect, are allowed to suffer from the parasites.

REVIEW

1. Explain how a baby chick should be fed for the first ten days after hatching.
2. Describe a good brooding coop.
3. Describe a brooder.
4. Name some of the advantages of a brooder.
5. Name some of the disadvantages of a brooder.

QUESTIONS

1. Name some enemies of poultry.
2. What are the habits of rats and skunks?
3. What is the best method of controlling them?
4. When and how do cats, hawks and crows catch young fowls?
5. How can they be controlled?
6. When do owls work, and how can they be caught?
7. What are the habits of lice?
8. Give methods of control.
9. What are the habits of mites?
10. Give methods of control.

HOME WORK

Collect some lice and mites in a small bottle and describe the size, shape, and number of legs of each. Examine them through a magnifying glass if possible.

LESSON XVIII

Diseases

The old adage, "An ounce of prevention is worth a pound of cure," is nowhere truer than in the treatment of poultry diseases. A sick chicken should always be a signal to warn the poultryman that something is wrong. He should immediately try to find and remove the cause of the ailment. Then he should proceed to the treatment of the fowl.

Of all the diseases that come to poultry, the least understood and the hardest to handle is roup. This disease is usually considered to be the last stage of a bad cold. When the fowl first takes cold, the corners of its eyes froth, and it is subject to frequent sneezing. After a few days, the head swells on one or both sides in front of the eyes. Then the entire head swells, and the breath becomes very offensive.

The cold is evidently caused originally by an alternate heating and chilling of the fowl's body, sometimes as a result of drafts in its sleeping quarters, or of the chickens standing in groups on the wet ground in the yard when the weather is windy. If the house is the cause of the trouble, do away with the drafts. If the chickens seem to be catch-

ing cold in the poultry yards, keep them in the houses on bad days.

There are two other diseases which many claim are related to roup—chicken pox, or sore head, and canker. Chicken pox affects the unfeathered parts of the head. It first appears as a blister; later, a dark, hard scab forms. Canker consists of sore spots in the mouth. These spots are often covered with a thick coat or yellowish scab.

No one has been able to show exactly what the relation between these three diseases is, but it is certain, at least, that they respond to the same treatment. Creolin or zenoleum is a good remedy when applied directly to the affected parts. As a system treatment, the following often proves effective:

Magnesium sulphate	10 oz.
Magnesium oxide	1 oz.
Sulphate of iron	2 oz.
Ground ginger	2 oz.
Sulphur	3 oz.

Give 1 teaspoonful to 12 fowls in moist mash each morning for 3 mornings then discontinue till needed. For severe cases double the dose.

Another common disease of poultry is gapes. This is caused by a small worm which fastens itself to the inside of the windpipe of a fowl, and lives by sucking the bird's blood. A fowl afflicted with gapes stands in a drooping position, frequently gaping and showing signs of irritation in the throat.

Since the gape worm lives in the earth and is picked up by the fowls from the soil, the best way to eradicate it is to move the chickens to a new place, and then to apply lime to the infected soil. The ground should be cultivated for one or two years, and should afterwards be sown in grass. It is not safe to move the chickens back until the infected place has been in grass for at least a year.

Before treating a fowl for the gapes, it is well to make sure that the chicken is really suffering from the disease. A good remedy for the ailment is to put the fowls in a box or barrel and to sift dry, air-slaked lime over them. The breathing of the dust by the fowls dislodges the worms. Care must be taken, however, not to use enough lime to suffocate the chickens themselves.

Limber neck is not a disease in itself, but is a condition resulting, usually, from ptomaine poisoning, though acute indigestion sometimes produces the same symptoms. It can be transmitted from a dead fowl to a live one, if the live bird is permitted to eat of the carcass of a fowl that died of limber neck. Accordingly, it is well to burn all the dead chickens that might transmit the trouble.

Scaly leg is a rough, irregular growth on the feet and legs, caused by a mite much smaller than that which infests the poultry houses. This mite works its way underneath the scales on a chicken's feet and legs, and causes an extra growth there. Like most parasites, it thrives better in filth,

and is sure to flourish on the feet of poultry that are allowed to roost in filthy quarters. Two or three applications of equal parts of lard and sulphur usually will cleanse the feet and legs of a fowl that is suffering from this pest.

Baby chicks are often afflicted with diseases caused by their being too warm or too cold, or by their being fed too young. They are also subject to white diarrhoea, a germ disease. The best way to prevent these diseases is to exercise care in housing and feeding the little chicks, as directed in Lessons XII and XIII.

REVIEW

1. What is the worst enemy to poultry?
2. Tell how to control hawks and crows.
3. Tell how to control rats and skunks.
4. How can we control lice?
5. How can we control mites?

QUESTIONS

1. What is the first step in controlling diseases?
2. What is the beginning of roup?
3. Give symptoms and remedy for roup.
4. Give symptoms and remedy for canker.
5. Give symptoms and remedy for chicken pox (sore head).
6. Give symptoms and remedy for limber neck.
7. Give symptoms and remedy for gapes.
8. Give symptoms and remedy for scaly legs.
9. If fowls have a cold where would you look for the trouble?
10. If they catch cold in the yard what can be done?

HOME WORK

Find two diseases in the flock at home and remedy them.

LESSON XIX

Care and Management

Almost all poultry will sooner or later be used for food purposes. Since this is the case, each fowl should be properly fattened before being sold. In selecting chickens for market, it is wise to choose those which will not prove profitable for egg-laying or breeding purposes. A hen is not profitable as an egg-producer after her second laying season; so all the old hens should be disposed of. Inasmuch as weak fowls are likely to produce weak chicks, all those that show indications of weakness should be selected for market. Fowls with long, straight necks, straight beaks, knock knees, and so forth, are not usually profitable. Accordingly, the sooner they are turned into cash, the better. At the close of the hatching season all male birds should be sold save those to be kept for the next year's breeding season. There is a double advantage in selling them off, since infertile eggs are better in quality and keep much longer than fertile eggs. Any pullets having serious defects, such as crooked backs or wry tails, should be disposed of.

When the young birds that are to be sold weigh from one to two pounds, they should be placed in a coop or small pen and fed on cracked corn, wheat middlings, wheat bran, and

sour milk for about ten days before being placed on the market.

Since a great deal of the profit in keeping chickens comes from the sale of the eggs, it is necessary that the eggs be in first class condition when placed on the market. They should be kept as carefully as milk and butter during the summer months. At all times, they should be clean; for clean eggs are more attractive, and secure higher prices than dirty ones. It is easy to ensure clean eggs, if good nests with plenty of fresh straw are provided. The straw also prevents the eggs from being cracked, as has been mentioned before; and an egg that is sound will keep much longer than one with a crack in it.

An egg should be nicely shaped if intended for market. Since small eggs turn down on their sides in the egg fillers, and very large ones stand up so high that the eggs above break them, eggs of an average weight of about two ounces should be selected for market. Those larger and smaller should be kept for home use.

In order to be sure of having fresh eggs, the eggs should be collected every day. If hens sit on eggs even over night, the germ begins to develop. After two days of incubation, the eggs are unfit for food. Moreover, hens must be watched and prevented from "stealing" their nests. Often they hide their eggs in out-of-the-way places, and by the time the nest is discovered, the eggs have been spoiled by the

heat of the sun. In order to ensure a reputation for reliability, always test with a candle any doubtful eggs before taking them to market. It is a good plan, oftentimes, to sell to dealers who buy " loss off "—that is, who test the eggs themselves, and pay only for the good ones. If you wish to market " strictly fresh " eggs, they should be disposed of twice a week if possible.

With poultry, as with everything else, care and promptness are two of the chief secrets of success. Especial care should be exercised in seeing that the fowls get food containing the proper elements for fattening or for egg production; and that the baby chicks are given proper rations. On many farms, the supply of sharp grit is all used up. When this is the case, grit must be furnished to the chickens. Crushed rock answers this purpose admirably. Care should be taken also to ensure to the chickens a constant supply of clean, fresh water. Unless the water is in very large vessels, it must be renewed oftener than once or twice a day.

Promptness in discovering and arresting disease has helped many a poultryman to prosperity. It is a good practice to look over the flock each day, in order to discover any disease before it gains a foothold. The fowl which seems sick or drooping should be immediately separated from the rest of the flock in order to prevent the spread of contagion; and the poultryman should spray the houses and coops regularly, without waiting for disease to appear.

It will be found that the work of poultry house and yard can be done much more easily and quickly if a little foresight is used in the location of the buildings. They should be so situated as to be convenient to the other farm buildings and to each other. It is a good plan, also, to have in the poultry house bins which will hold a large amount of feed so that it will not be necessary to go to the barn for feed a couple of times a day. It is attention to details such as these that distinguishes the good business man from the poor one, and the thrifty farmer from one that is shiftless.

REVIEW

1. Which is better, a preventative or a cure? Why?
2. Tell all you can of roup.
3. How would you treat canker?
4. What are gapes and how are they controlled?
5. How can you control scaly leg?

QUESTIONS

1. What is necessary to success in poultry?
2. What is the final use of most poultry?
3. Give a ration for small chicks.
4. What is grit for?
5. Can fowls live without it?
6. Give some points which indicate that a fowl is not profitable for laying or breeding purposes and should be sold on the market.
7. What results from hens stealing their nests?
8. How often should eggs be sold?
9. How do you candle eggs?
10. What are the advantages of good nests?

HOME WORK

Select two profitable and two unprofitable birds at home.

LESSON XX

Review

ANSWER ANY FIFTY QUESTIONS. TWO PER CENT. WILL BE ALLOWED FOR EACH CORRECT ANSWER

1. What does poultry mean?
2. Why should we study poultry?
3. Who grow poultry?
4. What is comparison judging?
5. What is score-card judging?
6. Where are eggs used for food?
7. Name the parts of poultry used for food.
8. Name the sections of a fowl.
9. Give the history of the meat breeds.
10. Give the history of the egg breeds.
11. Give the history of the dual-purpose breeds.
12. Compare White Plymouth Rock and White Orpington.
13. Compare Buff Plymouth Rock and Buff Cochin.
14. Compare Black Langshan and Black Minorca.
15. Name the solid-colored fowls.
16. Name the parti-colored fowls.
17. Describe the Barred Plymouth Rock.
18. Describe the Silver Wyandotte.
19. Describe the White Leghorn.
20. Describe the Light Brahma.
21. Describe the White Wyandotte.
22. Describe the Houdan.
23. Why should poultry houses be ventilated?
24. Describe a good location for a poultry house.
25. Describe a good poultry house.
26. Describe a colony house.
27. How should the house be equipped?
28. How many nests are needed?
29. Where should the nests be placed?
30. Describe a broody coop.
31. Describe a feed hopper.
32. How should the yard be divided?
33. Which fowls should be in breeding pen?
34. What is the best shaped yard?
35. What is the natural food of the fowl?
36. Give a good feed ration for hens.
37. Give a good feed ration for baby chicks.

38. Name the internal organs of a hen.
39. Tell the work done by each organ.
40. Should breeds be crossed?
41. Give some points that indicate high and low vitality.
42. What is an incubator?
43. Name the parts of an egg.
44. What is the temperature necessary to incubate eggs?
45. Explain natural and artificial brooding.
46. Name three enemies of poultry.
47. Give method of controlling each.
48. Name the three most common diseases of poultry.
49. Give causes and remedy of each.
50. Describe the healthy type of chicken.
51. Describe the type to cull and sell.
52. What is a good fattening ration?
53. Why is regular feeding necessary?
54. Why is a balanced feed necessary?
55. How should eggs be cared for?

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APPENDIX

GLOSSARY OF TECHNICAL TERMS.

BARRING: Bars extending across a feather at right angles to its length, or nearly so.

BEARD: In chickens, a group of feathers pendent from the throat, as in Houdans and Polish. In turkeys, a tuft of coarse, bristly hairs, four to six inches long, projecting from upper part of breast of mature males.

BEAK: The projecting mouth parts of chickens and turkeys, consisting of upper and lower mandibles.

BILL: The projecting mouth parts of water fowl consisting of upper and lower mandibles.

BLADE: The rear part of a single comb, back of the last well-defined point, usually extending beyond the crown of the head.

BREED: A race of fowls, the members of which maintain distinctive shape characteristics that they possess in common. Breed is a broader term than variety. Breed includes varieties, as, for example, the Barred, White, and Buff varieties of the Plymouth Rock breed.

BROOD: All the young birds hatched or cared for at one time by one mother, or in one brooder.

CHICKS: The young of the domestic hen, properly applied until the sex can be distinguished; sometimes used to designate specimens less than one year old.

COCK: A male fowl one year old and over.

COCKEREL: A male fowl less than one year old.

COMB: The fleshy protuberance growing on the top of a fowl's head. The standard varieties of combs are: Single, rose, pea, V-shaped, and strawberry, all others being modifications of these.

CONDITION: The state of a fowl as regards health, cleanliness, and order of plumage.

CROP: The receptacle in which a fowl's food is accumulated before it passes into the gizzard.

DISQUALIFICATION: A deformity or serious defect that renders a fowl unworthy to win a prize.

DISQUALIFIED: Term applied to a fowl that is unworthy to win a prize.

DOWN: The first hairy covering of chicks; also the tiny tufts of hair-like growth that sometimes are found on the shanks, toes, or feet, of fowls.

DRAKE: A male of the duck family.

DUCK: A female of the duck family, as disprior to the development of feathers.

EAR-LOBES: The folds of bare skin just below the ears, sometimes called "deer-ears." Ear-lobes vary in color in different breeds, being red, white, purple, cream, and so forth; they also vary greatly in size.

FLUFF: The soft feathers about thighs and posterior part of a fowl; also the soft, downy under-part of a feather.

GILLS: A term that is applied to the wattles.

HACKLE: The neck plumage of either sex, formed of the hackle feathers.

KNOCK-KNEED: A deformity in which the legs come too near together at the knee-joints and are bent outward, laterally, below the knees.

MEALY: Having the appearance of being sprinkled with meal. Applied to buff varieties where the ground color is stippled with a lighter color.

PARTI-COLORED: Feathers or fowls of two or more colors.

PEA COMB: A triple comb, of medium length, resembling three straight, single combs placed parallel with one another, and joined at base and rear, each having short but distinctly divided serrations, the serrations of the two outer rows being lower and smaller than those of the middle row, and those of each row being larger and somewhat thicker midway of the comb than at front and rear.

PEN: A male and four females.

PENCILING: Small markings or stripes on a feather. They may run straight across, as in the penciled Hamburgs, in which case they frequently are called bars, or may follow the outline of a feather, taking a crescentic form, as in the Dark Brahmas, Partridge Cochins, etc.

PLUMAGE: The feathers of a fowl.

POULT: The young of the domestic turkey, properly applied until the sex can be distinguished, when they become cockerels and pullets.

POULTRY: Domestic fowls reared for exhibition, for the table, or for their eggs or feathers.

PRIMARIES: The flight feathers of the wing, hidden, or nearly so, when the wing is close.

PULLET: A female fowl less than one year old.

QUILL: The hollow, horny, basal part, or stem, of a feather.

ROSE COMB: A low, thick, solid comb, the upper surface of which should be covered with small, rounded points. This comb terminates in a well-developed spike, which may turn upward as in Hamburgs; be nearly level, as in the Rose-comb Leghorns, or turn downward, as in the Wyandottes.

SCALY LEGS: A fowl's legs with an incrustation or deposit upon and beneath the scales.

SECONDARIES: The long quill feathers that grow on the second joint or fore-arm of a fowl's wing, visible when the wing is folded. With the primaries, they constitute the main feathers of the wing.

SOLID COLOR—SELF COLOR: A uniform color, unmixed with any other.

SERRATED: Notched along the edge like a saw.

SERRATION: One of the projections of a serrate.

SHAFT: The stem of a feather, especially the part filled with pith, which bears the barbs.

SHANK: The lower, scaly part of a fowl's leg, exclusive of the foot and toes.

SICKLES: The long, curved feathers of a male bird's tail, properly applied to the top pair only, but sometimes used in referring to the prominent tail coverts, which also are called lesser sickles.

SIDE SPRIGS: Extraneous, well-defined growths on the side of a comb.

SINGLE COMB: A comb consisting of a single thin, fleshy serrated formation, rising from the beak and extending backward over the crown of the head, and, in males, beyond the head.

SPANGLE: A clearly-defined marking of distinctive color, located at the end of a feather.

SPANGLED: Plumage made up of spangled feathers.

SQUIRREL TAIL: A fowl's tail, any portion of which projects forward toward the neck, beyond a perpendicular line drawn from the juncture of tail and back.

STRAIN: A family of any variety of fowls bred in line of descent by one fancier, or a successor, during a number of years, until it has acquired individual characteristics which distinguish it more or less from other strains of the same variety.

STRAWBERRY COMB: Approaching in shape the outline and surface of strawberry.

SURFACE COLOR: The visible color of the plumage when a fowl is at rest.

SYMMETRY: Perfection of proportion; the harmony of all the parts or sections of a fowl, viewed as a whole, with regard to the standard type of the breed it represents.

TAIL-FEATHERS, MAIN: The straight and stiff feathers of the tail that are contained inside the sickles and tail-coverts; the top pair are sometimes slightly curved, but generally are straight.

THUMB MARK: A disfiguring depression which sometimes appears in the side of a single comb.

TOE FEATHERING: The feathers on the toes of a fowl.

TRIO: One male and two females.

TYPICAL: Expressing a characteristic, in color or form, representative of a breed or variety; for example, "typical shape" means the form peculiar to a breed.

UNDER COLOR: The color of the downy portion of the plumage, not visible when the plumage is in its natural position.

VARIETY: A subdivision of a breed used to distinguish fowls having the standard shape of the breed to which they belong, but differing in color of plumage, shape of comb, etc., from other groups of the same breed. The general difference between the terms breed and variety is well brought out in the statement, popular among fanciers, "shape makes the breed; color the variety."

V-SHAPED COMB: A comb formed of two well-defined horn-like sections.

WATTLES: The pendent growths at the sides and base of the beak.

WEB—WEB OF FEATHER: The flat or plumed portion of a feather, made up of a series of barbs on either side of the shaft. WEB OF FEET: The flat skin between the toes. WEB OF WING: The triangular skin attaching the wing to the body, visible when wing is extended.

CLUBS AND CONTESTS

Much good can be had from the holding of contests in school (Fig. 51). Competitions of any sort have the effect of stimulating the interest of the pupils, and of encouraging them to greater efforts. Many contests are possible in connection with the study of poultry. A very interesting one consists of the naming of the breeds and varieties by the pupils, as mentioned in Lessons IV, V, and VI.

The fowls should be placed in numbered coops. The pupils are then given blank cards like that on Page 13; and are told to pass in front of the coops, examining the poultry, and writing on the cards the name and description of each fowl. The child who names the fowls and gives their characteristics correctly wins the contest. In case of a tie, the child whose spelling is the best wins. If there is still a tie, the penmanship on the card will decide the question.

Another good contest for counties where annual poultry shows are held consists of a competition among the children in raising fowls to be entered and judged at the county poultry show. Special prizes for fowls should be offered for the school children; and an additional prize should be given for the best exhibition coop made by a pupil (Fig. 52). These coops are twenty-four inches from front to back, thirty inches high, and forty inches long, with cloth ends, backs and tops, board bottoms, and wire fronts. Every pupil should exhibit the fowls he raises in a coop of his own making (Fig. 53).

FIG. 51.—Pupils naming breeds and varieties from pictures.

FIG. 52.—Children building exhibition coops which are 24 inches from the front to back, 30 inches high and 40 inches long, with cloth ends, back, and top, board bottom, and wire front.

FIG. 53.—Pupils after a contest, with their winnings.

FIG. 54.—Pupils with chickens which they have brought to school.

An effective contest can be based on the care and management by the child of the flock at home. The pupil should keep a definite and accurate record of all feed used and of the cost of houses, coops, and egg cases. He should also keep a record of all eggs used, sold, or incubated. These records, together with a three-page essay on some problem connected with poultry raising, will serve as the basis of the contest. The parents should co-operate with the teacher by seeing that the pupil does the work, and by furnishing written statements of the amount of work done by the child. The teacher should give the pupil school credit for the work done at home.

THE SCHOOL FAIR

During the fall season, the pupils should arrange for a one-day fair. On that day, they should bring to school many products of the farm, with poultry chief among them (Fig. 54). The parents should be invited to be present. It will not be hard to find competent men who will be willing to assist in judging the poultry and other products. The American Poultry Association has members in every school district, who will be glad to co-operate in this work and to help in every way possible. The prizes need not be elaborate. A ribbon often means just as much to a child as an expensive prize, and proves just as successful in stimulating the pupil to greater efforts.